

REMARKS

Claims 11-30 are currently pending in the application. By this amendment, claims 1-10 are canceled without prejudice or disclaimer, and claims 11-30 are added for the Examiner's consideration. The new claims do not add new matter to the application and are fully supported by the original disclosure. For example, support for the new claims is provided in the claims as originally filed, at Figures 2-4, and at pages 4-6 of the specification as originally filed. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

Objection to Drawings

The drawings were objected to for showing reference numbers 20, 21, and 22 and not mentioning these reference numbers in the description. The Examiner also indicated that the longitudinally profiled cylindrical mandrel is not shown. Moreover, FIG. 1 is objected for failing to include the label "Prior Art." These objections are respectfully moot and/or traversed.

By this amendment, the specification is amended to include the reference numbers identified by the Examiner. Moreover, it is believed that each feature recited in new claims 11-30 are sufficiently shown in the drawings and that no additional illustration is required for one having ordinary skill in the art to understand the claimed invention. Finally, FIG. 1 is amended to include the "Prior Art" label.

Accordingly, Applicants respectfully request that the objections to the drawings be withdrawn.

Substitute Specification

A substitute specification, including marked-up and clean versions, is attached hereto. More specifically, the specification and abstract have been amended to ensure closer compliance with U.S. patent practice. Additionally, the specification has been amended to include reference numbers 20, 21, and 22, identified by the Examiner as being shown in the drawings but not mentioned in the description. Applicants submit that no new matter is added by the amendments to the specification.

35 U.S.C. §112 1st paragraph, Rejection

Claim 3 is rejected under 35 U.S.C. §112, 1st paragraph. This rejection is respectfully traversed. By this response, claim 3 is canceled, thereby rendering the rejection moot.

Applicants note the subject matter of original claim 3 has been re-formulated and presented as new claims 13-15. Applicants submit these claims are enabled such that one having ordinary skill in the art could make and use the claimed invention without undue experimentation. More specifically, Applicants submit the subject matter of claims 13-15 is shown in FIG. 2 and described at least at paragraphs 0011, 0020, and 0041 of the clean version of the substitute specification submitted herewith. Applicants submit that, based upon this disclosure, one having ordinary skill in the art could make and use the claimed invention without having to resort to undue experimentation. Furthermore, Applicants submit that each of the new claims are in full compliance with Section 112, 1st paragraph.

Accordingly, Applicants respectfully request that the §112, 1st paragraph, rejection of claim 3 be withdrawn.

35 U.S.C. §112 2nd paragraph, Rejection

Claims 1-6 and 9 are rejected under 35 U.S.C. §112, 2nd paragraph. This rejection is respectfully traversed. By this response, claims 1-6 and 9 are canceled, thereby rendering the rejection moot. Furthermore, Applicants submit that each of the new claims are in full compliance with Section 112, 2nd paragraph.

Accordingly, Applicants respectfully request that the §112, 2nd paragraph, rejection of claims 1-6 and 9 be withdrawn.

35 U.S.C. §102 Rejection

Claims 1, 2, 4, 5, and 7-10 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,339,669 issued to Cretin et al. ("Cretin"). This rejection is respectfully traversed.

While disagreeing that Cretin anticipates claims 1, 2, 4, 5, and 7-10 because it lacks prior art disclosure sufficient to anticipate these claims, Applicants, in an effort to advance prosecution, have canceled claims 1, 2, 4, 5, and 7-10 in favor of new claims 11-30. Therefore, the rejection of these claims is moot. Applicants expressly reserve the right to file the subject matter of one or more of the canceled claims in one or more continuing applications.

Accordingly, Applicants respectfully request that the §102 rejection of claims 1, 2, 4, 5, and 7-10 be withdrawn.

New Claims

Applicants note that new claim 11 substantially recites the subject matter of original claims 1 and 2, and new claim 23 substantially recites the subject matter of original claims 7 and

2. Applicants submit the applied art (i.e., Cretin) does not disclose or suggest all of the features recited in these independent claims. More specifically, independent claim 11 recites, *inter alia*,

... a first drive structured and arranged to intermittently rotate the workpiece holder about a longitudinal axis of a workpiece held in the workpiece holder;

a second drive, separate from the first drive, structured and arranged to rotate the at least one forming tool to act periodically on the workpiece;

an electronic control operably connected to the first drive and the second drive, which controls intermittent rotational movement of the workpiece holder based upon the second drive,

Additionally, new independent claim 23 recites, in pertinent part:

intermittently rotating an axially moveable workpiece holder about a longitudinal axis of a workpiece held in the workpiece holder;

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See MPEP §2131. Applicants submit Cretin does not disclose the above-noted features of claims 11 and 23, and therefore does not anticipate the claims.

More specifically, Cretin does not disclose intermittent rotation of the workpiece holder. Instead, Cretin discloses an apparatus for cold-forming grooves on a wall of a rotating part. The part 7 is held in a part-holding shaft 5 that is rotated by a motor 71, while milling wheels 9A, 9B come into and out of contact with the part 7. Cretin, however, does not disclose, among other things, that the part moving shaft 5 is rotated intermittently. To the contrary, Cretin makes numerous references to the part holding shaft being rotated at a constant speed (i.e., not intermittently). More specifically, Cretin states at lines 56-60 of col. 10:

The milling wheel-holding shafts are driven at a constant speed V_m of 20 r.p.m. and the constant speed V_p of the part-holding shaft is regulated to 150

r.p.m. in accordance with the relation $V_p = V_m \cdot N_1/N_2$ in order to form 30 teeth on the circumference of the part.

Applicants note, for example, that Cretin teaches that the part holding shaft 5, and thus the part 7, is driven at a constant speed V_p . In contrast to Cretin, in exemplary embodiments of Applicants' invention, the first drive and electronic control cause intermittent rotation (e.g., rapid alternation of rotation and standstill) of the workpiece holder. As Cretin does not disclose such intermittent rotation, Applicants submit that Cretin does not disclose or suggest *a first drive structured and arranged to intermittently rotate the workpiece ... and an electronic control ... which controls intermittent rotational movement of the workpiece holder*, as recited in claim 11, or *intermittently rotating an axially moveable workpiece holder about a longitudinal axis of a workpiece held in the workpiece holder*, as recited in claim 23.

Moreover, independent claims 11 and 23 additionally recite, *inter alia*,

the at least one forming tool comprises profiled wheels or rollers that are driven to continually rotate along a circular orbit that is oriented parallel or obliquely to the longitudinal axis of the workpiece.

Applicants also submit that Cretin also fails to disclose this feature of the claimed invention and notes that in Cretin, the milling wheels 9A, 9B are not driven to continually rotate along a circular orbit. Instead, the milling wheels 9A, 9B are axially moved into and out of contact with the part 7 via slides 4A, 4B. In contrast to Cretin, in exemplary embodiments of Applicants' invention, the forming tool 12 is brought into and out of contact with the part 1 by continually rotating about a circular orbit 13 (see, e.g., FIG. 4). Cretin discloses no such movement in a circular orbit. Therefore, Cretin does not disclose or suggest *the at least one forming tool comprises profiled wheels or rollers that are driven to continually rotate along a circular orbit*, as recited in claims 11 and 23.

Moreover, Applicants submit Cretin does not disclose *the at least one forming tool comprises profiled wheels or rollers that are driven to continually rotate along a circular orbit that is oriented parallel or obliquely to the longitudinal axis of the workpiece*, as further recited in claims 11 and 23. As Cretin does not disclose movement of the milling wheels 9A, 9B in a circular orbit, it follows that Cretin cannot arguably disclose a circular orbit that is oriented parallel or obliquely to the longitudinal axis of the workpiece.

Furthermore, new independent claim 30 substantially recites subject matter that was present in original claims 1 and 4. More specifically, claim 30 recites:

... a first drive structured and arranged to intermittently rotate the workpiece holder about a longitudinal axis of a workpiece held in the workpiece holder;

a second drive, separate from the first drive, structured and arranged to rotate the at least one forming tool to act periodically on the workpiece; and

a third drive structured and arranged to axially advance the workpiece holder along the longitudinal axis,

wherein the first, second, and third drives are electronically coupled with one another and connected with an electronic control which controls intermittent rotational movement of the workpiece holder.

Applicants submit Cretin does not disclose at least this combination of features. More specifically, as discussed *supra*, Cretin does not disclose intermittent rotation of the workpiece holder. Instead, Cretin discloses that the part holding shaft is rotated at a constant speed. Therefore, Cretin does not disclose *a first drive structured and arranged to intermittently rotate the workpiece ... and an electronic control which controls intermittent rotational movement of the workpiece holder*, as recited in claim 30.

Moreover, Cretin also does not disclose first, second, and third drives electronically coupled with one another and connected with an electronic control. Cretin, for example, makes

no mention of three such drives being electronically coupled with one another. Therefore, Cretin does not disclose all of the features of claim 30.

Even further, Applicants submit that Cretin does not disclose or suggest many of the features recited in the various dependent claims. For example, Cretin does not disclose *the circular orbit is adjustably oriented*, as recited in claim 12. As discussed supra, Cretin does not disclose milling wheels driven to continually rotate in a circular orbit. Therefore, Cretin cannot arguably suggest such a feature.

Cretin further does not disclose first, second and third drives are electronically coupled to one another, as recited in claim 16. As discussed above with respect to claim 30, Cretin provides no suggestion whatsoever with regard to utilizing three drives that are electronically coupled to one another.

Additionally, Cretin does not disclose that *the device is structured and arranged to manufacture helical toothings on cylindrical workpieces*, as recited in claim 22, or *the rotating, the acting on, and the controlling generate helical toothings on the workpiece*, as recited in claim 29. To the contrary, Cretin's system is not described as being arranged to manufacture or generate *helical* toothings.

For all of the above-discussed reasons, Applicants submit that Cretin does not anticipate the invention as recited in new claims 11-30.

35 U.S.C. §103 Rejection

Claim 6 is rejected under 35 U.S.C. §103(a) for being unpatentable over Cretin in view of U.S. Patent No. 5,001,916 issued to Schuler et al. ("Schuler"). This rejection is respectfully traversed.


While Applicants disagree that claim 6 is unpatentable over the combination of Cretin and Schuler, in an effort to advance prosecution, claim 6 has been canceled in favor of one or more new claims which are not rendered unpatentable over these documents. Therefore, the rejection of claim 6 is moot. Applicants also expressly reserve the right to file the subject matter of claim 6 in one or more continuing applications.

Accordingly, Applicants respectfully request that the §103 rejection of claim 6 be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 19-0089.

Respectfully submitted,
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January 22, 2008
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